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Attorney's Docket No.: 07880-126001

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1.   (Currently amended) A method for media access control in a communication system which includes a plurality of communication stations which communicate over a shared communication medium comprising:

assigning communication resources in accordance with quality of service requirements of a plurality of communication sessions, including determining a polling pattern;

polling each of the communication stations to transmit data over the shared communication medium for the plurality of communication sessions according to the polling pattern;

monitoring data transmitted by the communication stations in response to the polling;

adapting assignment of the communication resources in accordance with the monitoring, including adapting the polling pattern including for each of the communication sessions adapting a rate of polling associated with said session according to said monitoring by

reducing a rate of polling for a session in response to the monitored transmissions for that session corresponding to a reduction in actual rate of transmission for that session, and

increasing a rate of polling for a session in response to the monitored transmissions for that session corresponding to an increase in actual rate of transmission for that session; and

continuing polling of each of the communication stations according to the adapted polling pattern.

2.   (Cancelled)

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3.   (Previously presented) The method of claim 1 further comprising:

accepting a request to establish a new communication session;

admitting the new session if a quality of service requirement for said new session can be provided without exceeding a limit on available communication capacity on the shared communication medium; and

rejecting the new session if the quality of service requirement cannot be provided without exceeding the limit on available communication resources.

4.   (Previously presented) The method of claim 1 wherein assigning communication resources in accordance with the quality of service requirements includes assigning said communication resources according to data rate requirements for the plurality of communication sessions.

5.   (Previously presented) The method of claim 1 wherein assigning communication resources in accordance with the quality of service requirements includes assigning said communication resources according to maximum intervals between polling of the plurality of sessions.

6.   (Previously presented) The method of claim 4 wherein assigning communication resources includes:

determining a subset of the plurality of communication sessions that can be provided with data rate requirements for said sessions; and

assigning data rates to each of the subset of sessions in accordance with said data rate requirements.

7.   (Previously presented) The method of claim 6 wherein

monitoring data transmission includes collecting data retransmission statistics, and

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assigning communication resources includes adjusting data rate requirements in accordance with the collected retransmission statistics.

8. (Previously presented) Then method of claim 4 wherein assigning communication resources includes optimizing a utility function subject to a set of constraints.

9.-11. (Cancelled)

12. (Previously presented) The method of claim 1 wherein the polling pattern includes a periodic cycle such that during each period of the cycle a subset of the communication sessions are polled in accordance with their allocated communication resources.

13. (Cancelled)

14. (Previously presented) The method of claim 1 wherein polling the communication stations to transmit data for the plurality of communication sessions includes:
     assembling a data message identifying at least one of the communication sessions; and
     transmitting the data message to one of the communication stations using a wireless transmitter;
     and wherein monitoring data transmitted by the communication stations includes receiving the data transmissions using a wireless receiver.

15. (Currently amended) An apparatus for controlling media access by a plurality of stations configured to communicate over a shared communication medium in a communication system comprising:
     means for assigning communication resources in accordance with quality of service requirements of a plurality of communication sessions, including a means for determining a polling pattern;

means for polling each of the communication stations to transmit data over the shared communication medium for the plurality of communication sessions according to the polling pattern;

means for monitoring data transmitted by the communication stations in response to the polling; and

means for adapting assignment of the communication resources in accordance with the monitoring, including adapting the polling pattern including for each of the communication sessions adapting a rate of polling associated with said session according to said monitoring by

reducing a rate of polling for a session in response to the monitored transmissions for that session corresponding to a reduction in actual rate of transmission for that session; and

increasing a rate of polling for a session in response to the monitored transmissions for that session corresponding to an increase in actual rate of transmission for that session.

16.   (Previously presented) The apparatus of claim 15 further comprising:

means for accepting a request to establish a new communication session over the shared communication medium;

means for admitting the new communication session if a quality of service requirement for said session can be provided without exceeding a limit on available communication resources; and

means for rejecting the new session if the quality of service requirement cannot be provided without exceeding the limit on available communication resources.

17.   (Currently amended) Software stored in a computer readable medium for causing a computer system to perform the functions of:

assigning communication resources in accordance with quality of service requirements of a plurality of communication sessions on a shared communication medium, including determining a polling pattern;

polling each of a plurality of communication stations to transmit data for the plurality of communication sessions according to the polling pattern;

monitoring data transmitted over the shared communication medium by the communication stations in response to the polling;

adapting assignment of the communication resources in accordance with the monitoring, including adapting the polling pattern including for each of the communication sessions adapting a rate of polling associated with said session according to said monitoring by

reducing a rate of polling for a session in response to the monitored transmissions for that session corresponding to a reduction in actual rate of transmission for that session; and

increasing a rate of polling for a session in response to the monitored transmissions for that session corresponding to an increase in actual rate of transmission for that session; and

continuing polling of each of the communication stations according to the adapted polling pattern.

18. (Cancelled)

19. (Previously presented) The software of claim 17 further causing the computer system to perform the functions of:

accepting a request to establish a new communication session;

admitting the new communication session if a quality of service requirement for said session can be provided without exceeding a limit on available communication resources; and

rejecting the new session if the quality of service requirement cannot be provided without exceeding the limit on available communication resources.

20. (Previously presented) The software of claim 19 wherein the quality of service requirement for the new communication session includes a minimum required and a maximum desired data rate.

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21. (Previously presented) An apparatus for polling a plurality of stations configured to communicate over a shared communication medium in a communication system comprising:

a polling manager configured to send polling messages to the stations in accordance with a polling pattern;

a transmitter coupled to the polling manager configured to accept the polling messages from the polling manager and to transmits the messages over the shared communication medium to the stations; and

a receiver coupled to the polling manager configured to receive messages over the shared communication medium from the stations and to provide monitoring information to the polling manager;

wherein the polling manager is configured to adapt the polling pattern including adapting a rate of polling associated with associated with each of the stations in accordance with the monitoring information by

reducing a rate of polling for a session in response to the monitored transmissions for that session corresponding to a reduction in actual rate of transmission for that session, and

increasing a rate of polling for a session in response to the monitored transmissions for that session corresponding to an increase in actual rate of transmission for that session.

22. (Previously presented) The apparatus of claim 21 further comprising a resource manager coupled to the polling manager configured to accept requests to admit communication sessions and to provide resource allocations for admitted sessions to the polling manager.

23. (Cancelled)

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24.   (Previously presented) The method of claim 1 further comprising receiving statistics related to the communication session and adapting assignment of the communication resources further includes allocating the resources in accordance with the received statistics.

25.   (Previously presented) The method of claim 24 wherein the statistics related to the session includes a queue length for a session, and wherein adapting assignment of the communication resources includes adapting the polling sequence according to the queue length.

26.   (Previously presented) The method of claim 14 wherein assigning the communication resources is performed at a designated arbiter station, and wherein transmitting the data message includes transmitting the data message from the arbiter station to one or more of the communication stations.

27.   (Previously presented) The method of claim 26 wherein assigning the communication resources is in addition performed at one or more of the communication stations, and wherein the method further comprises designating one of said one or more communication stations to assume the role of the arbiter station.

28.   (Previously presented) The method of claim 1 wherein assigning communication resources in accordance with the quality of service requirements includes assigning said communication resources according to maximum delay requirements of the plurality of communication sessions.

29.   (Previously presented) The method of claim 1 wherein assigning communication resources in accordance with the quality of service requirements includes assigning said communication resources according to security requirements of the plurality of communication sessions.

30.   (Previously presented) The method of claim 1 wherein polling the communication

stations to transmit data includes:

assembling a data message identifying a two or more communication sessions originating

at two or more of the communication stations and identifying time intervals during which said

communication stations are permitted to transmit data over the shared communication medium;

and

transmitting the data message to said two or more communication stations.

31.   (Previously presented) The method of claim 1 wherein assigning communication

resources includes assigning communication resources for each of a plurality of communication

channels one the shared communication medium.

32.   (Previously presented) The method of claim 31 wherein assigning communication

resources for each of the plurality of communication channels includes determining a separate

polling pattern for each of said channels.

33.   (Previously presented) The method of claim 1 wherein the communication system

includes a distributed telecommunication system.

34.   (Previously presented) The method of claim 33 wherein the distributed

telecommunication system is a wireless local loop system.

35.   (Currently amended) In a communication system in which a plurality of stations

share access to a communication network according to a multiple-access media access control

protocol, a method for controlling access by the stations to said network comprising:

at an arbiter station that is coupled to the communication network, determining a polling

pattern for polling the plurality of stations including

reducing a rate of polling for a station in response to monitored transmissions for that session corresponding to a reduction in actual rate of transmission for that station, and

increasing a rate of polling for a station in response to the monitored transmissions for that session corresponding to an increase in actual rate of transmission for that station;

transmitting polling messages from the arbiter station to each of the plurality of communication stations according to the polling pattern;

receiving the polling messages [from] at the plurality of stations; and

at each of the plurality of stations, using the received polling messages to determine times when to transmit onto the communication network, and at said determined times transmitting data onto the communication network using the multiple access media access control protocol.

36.   (Previously presented) The method of claim 35 further comprising, at each of the plurality of stations, providing a software interface to a network layer protocol module, and accepting messages over said software interface from the network layer protocol module, and wherein determining the times when to transmit onto the communication network includes determining times when to transmit said messages accepted over said software interface.

37.   (Previously presented) The method of claim 36 wherein transmitting data onto the communication network includes transmitting the accepted messages using an Ethernet protocol.

38.   (Previously presented) The method of claim 37 wherein the network layer protocol module includes an Internet Protocol (IP) module.

39.-47. (Cancelled)